

# INTERNATIONAL SEARCH REPORT

International application No.  
PCT/CA2004/002138

## A. CLASSIFICATION OF SUBJECT MATTER

IPC7: C12M 3/00; C12N 5/00

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

IPC7: C12M 3/00; C12N 5/00

Electronic database(s) consulted during the international search (name of database(s) and, where practicable, search terms used)

Canadian Patent Database, Delphion, WEST, Pubmed, USPTO, Esp@cenet

Search terms: device, apparatus, bioreactor, one-dimensional, cell, tissue, culture, monolayer, spacers, spacing, barriers, microfluidal, network, patterning, chemical, morphological, micropatterning, microchannel, biomimetic, embossing, PDMS, microvalve, hydrogel

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No(s).
X	LI S et al Effects of morphological patterning on endothelial cell migration. BIORHEOLOGY 2001 38:101-108 Whole document	1, 2, 4, 6-8, 11-16, 19, 23, 24, 27, 28, 32, 34, 38, 39, 44, 46, 49-52, 54-56, 60, 62, 66, 67, 72, 74, 77-80, 82, 84, 87, 88, 92, 94, 98, 99, 106, 111-117
Y		3, 14, 17, 20, 22, 24-26, 29-31, 43, 45, 48, 52-54, 56-59, 71, 73, 76, 84-86, 89-91, 103, 105, 108-110
X	MATA A et al Analysis of connective tissue progenitor cell behavior on polydimethylsiloxane smooth and channel micro-textures. BIOMED MICRODEVICES 2002 4(4):267-275 Whole document	1, 2, 4, 6-8, 11-16, 19, 23, 24, 27, 28, 32, 34, 38, 39, 44, 46, 49-52, 54-56, 60, 62, 66, 67, 72, 74, 77-80, 82, 84, 87, 88, 92, 94, 98, 99, 106, 111-117
Y		3, 14, 17, 20, 22, 24-26, 29-31, 43, 45, 48, 52-54, 56-59, 71, 73, 76, 84-86, 89-91, 103, 105, 108-110

[X] Further documents are listed in the continuation of Box C.

[X] See patent family annex.

* Special categories of cited documents :	"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
"A" document defining the general state of the art which is not considered to be of particular relevance	"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
"E" earlier application or patent but published on or after the international filing date	"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)	"&" document member of the same patent family
"O" document referring to an oral disclosure, use, exhibition or other means	
"P" document published prior to the international filing date but later than the priority date claimed	

Date of the actual completion of the international search

04 April 2005 (04-04-2005)

Date of mailing of the international search report

10 May 2005 (10-05-2005)

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## C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No(s).
X	<p>DETINGER SKW et al Gradients of substrate-bound laminin orient axonal specification of neurons. PROC NATL ACAD SCI USA 01.10.2002 99(20):12542-12547 Whole document</p>	1, 2, 4-8, 11-19, 23, 24, 27, 28, 32, 34, 38, 39, 44, 46, 49-52, 55, 56, 60, 62, 66, 67, 72, 74, 77-80, 82-84, 87, 88, 92, 94, 98, 99, 106, 111-117
Y		3, 14, 17, 20, 22, 24-26, 29-31, 43, 45, 48, 52-54, 56-59, 71, 73, 76, 84-86, 89-91, 103, 105, 108-110
X	<p>TAYLOR AM et al Microfluidic multicompartiment device for neuroscience research. LANGMUIR (Advance article) 04.12.2002 DOI:10.1021/la026417v [retrieved on 04.04.2005]. Retrieved from the Internet: &lt;URL:http://nljgroup.eng.uci.edu/Articles/Anne%202003.pdf&gt; Whole document</p>	1, 2, 4, 6-8, 11-16, 19, 23, 24, 27, 28, 32, 34, 38-40, 44, 46, 49-52, 55, 56, 60, 62, 66-68, 72, 74, 77-80, 82-84, 87, 88, 92, 94, 98, 99, 100, 104, 106, 111-119
Y		3, 14, 17, 20, 22, 24-26, 29-31, 43, 45, 48, 52-54, 56-59, 71, 73, 76, 84-86, 89-91, 103, 105, 108-110
X	<p>US5976826 A (PRESIDENT AND FELLOWS OF HARVARD COLLEGE, US) 02.11.1999 Whole document</p>	1, 4, 6-8, 11-16, 19, 21-24, 27, 28, 32, 42, 46, 49-52, 55, 56, 70, 77-80, 82-84, 87, 88, 92, 102, 104, 106, 109, 111
Y	<p>YU Q et al Responsive biomimetic hydrogel valve for microfluidics. APPL PHYS LETT 23.04.2001 78(17):2589-2591 Whole document</p>	17, 26, 43, 54, 71, 86, 103
Y	<p>EGGINS BR Chemical Sensors and Biosensors. Analytical techniques in the sciences. 2002 John Wiley &amp; Sons, New York., 273pp. Chapter 5: Electrochemical sensors and biosensors</p>	14, 20, 29-31, 56-59, 89-91
Y	<p>WHITESIDES GM The 'right' size in nanobiotechnology. NAT BIOTECHNOL 10.2003 21(10):1161-1165 Page 1161, second column, fourth paragraph; page 1163, second column, last paragraph through page 1164, first column, fifth paragraph</p>	3, 14, 20, 29-31, 56-59, 89-91
Y	<p>TAKAYAMA S et al Patterning cells and their environments using multiple laminar fluid flows in capillary networks. PROC NATL ACAD SCI USA 05.1999 96:5545-5548 Whole document</p>	24, 25, 48, 52, 53, 76, 84, 85, 108

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Information on patent family members

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Patent Document Cited in Search Report	Publication Date	Patent Family Member(s)	Publication Date
US5976826 A	02-11-1999	US5776748 A	07-07-1998
		US5976826 A	02-11-1999
		US6368838 B1	09-04-2002
		US2002094572 A1	18-07-2002